

The functions  $\sin(xy)$  and  $e^x - y^6$  are continuous everywhere, so  $F(x, y) = \frac{\sin(xy)}{e^x - y^6}$  is continuous except where  $e^x - y^6 = 0 \Rightarrow y^6 = e^x \Rightarrow y = \pm \sqrt[6]{e^x} = \pm e^{\frac{1}{6}x}$ . Thus  $F$  is continuous on its domain  $\{(x, y) \mid |y| \neq e^{x/6}\}$ .